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receiving a user query consisting of at least one computation and an attribute-value list having one or more elements, each element being associated with an attribute having a value assigned by a user or a user process;

determining queries in a plurality of queries having said at least one computation and sharing one or more elements in common with the user query to provide a set of related queries;

computing a result of said at least one computation for the attribute-value list associated with each query in said set of related queries; and

comparing the results associated with said set of related queries to determine one or more queries having the greatest-valued result, or one or more queries having the least-valued result.

34. (Amended) The method of claim 33, further comprising the step of generating a list of queries having said at least one computation, each query being associated with an attribute-value list having the greatest-valued result of all queries in said plurality of queries sharing one or more elements in common with a preceding query or a succeeding query in said list of queries.

35. (Amended) The method of claim 34, wherein said list of queries yields a non-decreasing succession of numeric results and wherein the step of generating a list of queries comprises the steps of:

(a) adding the query in said set of related queries having the greatest-valued result as a last query in said list of queries;

(b) determining queries in said plurality of queries having said at least one computation and sharing one or more elements in common with said last query to provide a set of queries related to said last query;

(c) computing a result of said at least one computation for the attribute-value list associated with each query in said set of queries related to said last query;

(d) comparing the results associated with said set of queries related to said last query to determine one or more queries having the greatest-valued result;

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(e) selecting one query as the query having the greatest-valued result if it is determined that more than one query in said set of queries related to said last query has the greatest-valued result;

(f) adding the query having the greatest-valued result to end of said list of queries as a new last query if it is determined that said new last query is not equivalent to said last query; and

Sub B (g) repeating steps (b) through (f) until there is no query in said plurality of queries having a result greater than the last query and sharing one or more elements in common with the last query.

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37. (Amended) The method of claim 36, further comprising the step of generating a list of queries having said at least one computation, each query being associated with an attribute-value list having the least-valued result of all queries in said plurality of queries sharing one or more elements in common with a preceding query or a succeeding query in said list of queries.

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39. (Amended) The method of claim 29, further comprising the step of:

(a) assigning one query from said set of related queries as a first query;

(b) determining queries in said plurality of queries having said at least one computation and sharing one or more elements in common with said first query to provide a set of queries related to said first query;

(c) computing a result of said at least one computation for the attribute-value list associated with each query in said set of queries related to said first query;

(d) comparing the results associated with said set of queries related to said first query to determine one or more queries having the greatest-valued result, or one or more queries having the least-valued result;

(e) assigning another query in said set of related queries as said first query; and

(f) repeating steps (b) through (e) for every query in said set of related queries.

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50. (Amended) A method of finding queries having greatest-valued or least-valued results from a plurality of queries, each query having at least one computation and consisting of an attribute-value list having one or more elements, each element being associated with an attribute having a value, comprising the steps of:

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generating pre-computed greatest-valued and pre-computed least-valued lists for each computation in a plurality of computations by:

pre-determining queries in said plurality of queries having said each computation to provide a set of computationally related queries; and

pre-determining for each query in said set of computationally related queries whether said each query has the greatest-valued result or the least-valued result for all queries in said set of computationally related queries sharing one or more elements in common with said each query;

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receiving a user query consisting of at least one computation and one or more elements assigned by a user or user process;

selecting said pre-computed greatest-valued list and said pre-computed least-valued list associated with said at least one computation of the user query;

determining queries in said selected pre-computed greatest-valued list sharing one or more elements in common with the user query to provide one or more queries having corresponding greatest-valued results to provide a set of max queries; and

determining queries in said selected pre-computed least-valued list sharing one or more elements in common with the user query to provide one or more queries having corresponding least-valued results to provide a set of min queries.

54. (Amended) A method of finding queries having greatest-valued or least-valued results from a plurality of queries, comprising the steps of:

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(a) receiving a user query consisting of a plurality of computations and an attribute-value list having one or more elements, each element being associated with an attribute having a value assigned by a user;

(b) assigning one computation from said plurality of computations as a first computation;

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- (c) determining queries in said plurality of queries having said first computation to provide a set of computationally related queries;
 - (d) determining queries in said set of computationally related queries sharing one or more elements in common with the user query to provide a set of related queries;
 - (e) computing a result of said first computation for the attribute-value list associated with each query in said set of related queries;
 - (f) comparing the results associated with said set of related queries to determine one or more queries having the greatest-valued result or one or more queries having the least-valued result;
 - (g) assigning another computation from said plurality of computations as said first computation; and
 - (h) repeating steps (f) through (g) for every computation in said plurality of computations.

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55. (Amended) The method of claim 54, wherein the step (d) further comprises the steps of:

- (i) assigning one query from said set of related queries as a first query;
- (j) determining queries in said set of computationally related queries sharing one or more elements in common with said first query to provide a set of queries related to said first query;
- (k) computing a result of said first computation for the attribute-value list associated with each query in said set of queries related to said first query;
- (l) comparing the results associated with said set of queries related to said first query to determine one or more queries having the greatest-valued result, or one or more queries having the least-valued result;
- (m) assigning another query in said set of related queries as said first query; and
- (n) repeating steps (j) through (m) for every query in said set of related queries.

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57. (Amended) Apparatus for finding queries having greatest-valued or least-valued results, comprising:

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a device for receiving a user query consisting of at least one computation and an attribute-value having one or more elements, each element being associated with an attribute having a value assigned by a user;

a device for determining queries in said plurality of queries having said at least one computation and one or more elements in common with the user query to provide a set of related queries;

a computing device for computing a result of said at least one computation for the attribute-value list associated with each query in said set of related queries; and

a comparator for comparing the results associated with said set of related queries to determine one or more queries having the greatest-valued result or one or more queries having the least-valued result.

62. (Amended) The apparatus of claim 61, further comprising a generating device for generating a list of queries having said at least one computation, each query being associated with an attribute-value list having the greatest-valued result of all queries in said plurality of queries sharing one or more elements for common with a preceding query or a succeeding query in said list of queries.
63. (Amended) The apparatus of claim 62, wherein said list of queries yields a non-decreasing succession of numeric results and wherein said generating device comprises a control device for adding the query having the greatest-valued result as a last query in said list of queries, for operating said device for determining to determine queries in said plurality of queries having said at least one computation and sharing one or more elements in common with said last query to provide a set of queries related to said last query, for operating said computing device to compute a result of said at least one computation for the attribute-value list associated with each query in said set of queries related to said last query, for operating said comparator to compare the results associated with said set of queries related to said last query to determine one or more queries having the greatest-valued result, for selecting one query as the query having the greatest-valued result if it is determined that more than one-query in said set of queries related to said last query has the greatest-valued result, and for adding the query having the greatest-valued

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result to end of said list of queries as a new last query if it is determined that said new last query is not equivalent to said last query.

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65. (Amended) The apparatus of claim 64, further comprising a generating device for generating a list of queries having said at least one computation, each query being associated with an attribute-value list having the least-valued result of all queries in said plurality of queries sharing one or more elements in common with a preceding query or a succeeding query in said list of queries.

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66. (Amended) The apparatus of claim 65, wherein said list of queries yields a non-decreasing succession of numeric results and wherein said generating device comprises a control device for adding the query in said of related queries having the least-valued result as a last query in said list of queries for operating said device for determining to determine queries in said plurality of queries having said at least one computation and share one or more elements in common with said last query to provide a set of queries related to said last query, for operating said computing device to compute a result of said at least one computation for the attribute-value list associated with each query in said set of queries related to said last query, for operating said comparator to compare the results associated with said set of queries related to said last query to determine one or more queries having the least-valued result, for selecting one query as the query having the least-valued result if it is determined that more than one query in said set of queries related to said last query has the least-valued result, and for adding the query having the least-valued result to end of said list of queries as a new last query if it is determined that said new last query is not equivalent to said last query.

67. (Amended) The apparatus of claim 57, further comprising a control device for assigning one query from said set of related queries as a first query, for operating said device for determining to determine queries in said plurality of queries having said at least one computation and sharing one or more elements in common with said first query to provide a set of queries related to said first query, for operating said computing device to compute a result of said at least one computation for the attribute-value list associated with each query in said set of queries related to said first query, for operating said

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comparator to compare the results associated with said set of queries related to said first query to determine one or more queries having the greatest-valued result, or one or more queries having the least-valued result, and for assigning another query in said set of related queries as said first query.

76. (Amended) Apparatus for finding queries having greatest-valued or least-valued results from a plurality of queries, each query having at least one computation and consisting of an attribute-value list having one or more elements, each element being associated with an attribute having a value comprising:

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a device for generating pre-computed greatest-valued and pre-computed least-valued lists for each computation in a plurality of computations by pre-determining queries in said plurality of queries having said each computation to provide a set of computationally related queries and pre-determining for each query in said set of computationally related queries whether said each query has the greatest-valued result or the least-valued result for all queries in said set of computationally related queries sharing one or more elements in common with said each query;

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a receiver for receiving a user query consisting of at least one computation and one or more elements assigned by a user or user process;

a selector for selecting said pre-computed greatest-valued list and said pre-computed least-valued list associated with said at least one computation of the user query; and

a device for determining queries in said selected pre-computed greatest-valued list sharing one or more elements in common with the user query to provide one or more queries having corresponding greatest-valued results to provide a set of max queries and determining queries in said selected pre-computed least-valued list sharing one or more elements in common with the user query to provide one or more queries having corresponding least-valued results to provide a set of min queries.

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93. (Amended) Apparatus of finding queries having greatest-valued or least-valued result from a plurality of queries, comprising:

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a receiver for receiving a user query consisting of a plurality of computations and an attribute-value list having one or more elements, each element being associated with an attribute having a value assigned by a user;

a device for assigning one computation from said plurality of computation as a first computation;

a device for determining queries in said plurality of queries having said first computation to provide a set of computationally related queries and determining queries in said set of computationally related queries sharing one or more elements in common with the user query to provide a set of related queries;

a company device for computing a result of said first computation for the attribute-value list associated with each query in said set of related queries;

a comparator for comparing the results associated with said set of related queries to determine one or more queries having the greatest-valued result or one or more queries having the least-valued result; and

a control device for controlling said device for assigning to assign another computation from said plurality of computations as said first computation.

94.

(Amended) The apparatus of claim 93, wherein said control device is operable to operate said device for assigning to assign one query from said set of related queries as a first query, for operating said device for determining to determine queries in said set of computationally related queries sharing one or more elements in common with said first query to provide a set of queries related to said first query, for operating said computing device to compute a result of said first computation for the attribute-value list associated with each query in said set of queries related to said first query, for operating said comparator to compare the results associated with said set of queries related to said first query to determine one or more queries having the greatest-valued result, or one or more queries having the least-valued result, and for operating said device for assigning to assign another query in said set of related queries as said first query.

96.

(Amended) Apparatus of finding queries having greatest-valued or least-valued results from a plurality of queries, comprising: